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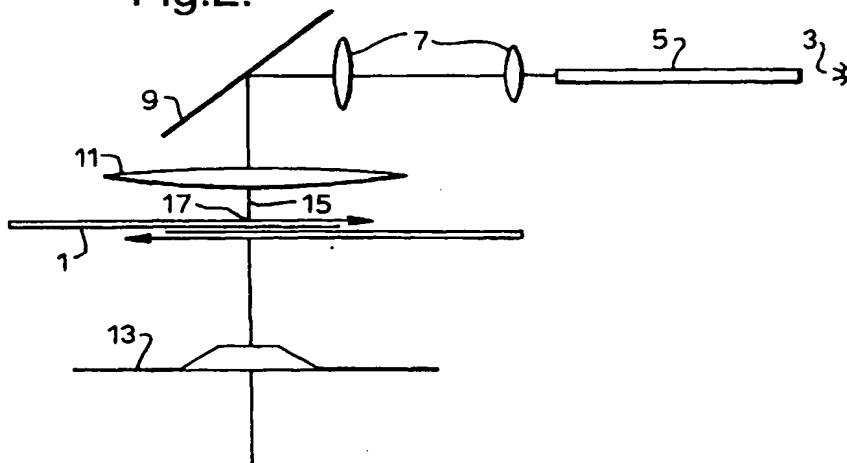
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(54) **Lithography apparatus**

(57) Lithographic projection apparatus and a correction device for lithographic projection apparatus, wherein the lithographic projection apparatus comprises means for projecting a beam of radiation onto a mask (13), characterised in that the correction device com-

prises filter means (1) placed in the path of the beam (15) for varying the spatial intensity of the beam (15) along at least one direction of its cross-section so that the integrated intensity of radiation at mask level (13) is substantially uniform across the entire length of the cross-section.

Fig.2.



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EUROPEAN SEARCH REPORT

Application Number
EP 99 30 2768

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	US 4 598 197 A (ASAKAWA TERUSHIGE ET AL) 1 July 1986 (1986-07-01) * column 2, line 17 - line 51 * * column 3, line 6 - column 5, line 4 * * figures 1,4 *	1,2, 10-12, 16,19, 22-26	603F7/20
D,X	US 5 486 896 A (MURAKAMI MASAICHI ET AL) 23 January 1996 (1996-01-23) * column 3, line 44 - column 4, line 19 * * column 15, line 54 - column 17, line 56 * * claims * * figures 1,16 *	1,2,16, 19,23-26	
P,X	PATENT ABSTRACTS OF JAPAN vol. 1998, no. 12, 31 October 1998 (1998-10-31) -& JP 10 199800 A (NIKON CORP), 31 July 1998 (1998-07-31) * abstract * -& US 6 051 842 A (YAMAMOTO NORIAKI) 18 April 2000 (2000-04-18) * column 2, line 66 - column 3, line 22 * * column 5, line 3 - line 34 * * column 8, line 41 - line 61 * * figures 1,2 *	1-5,11, 12,23-26	TECHNICAL FIELDS SEARCHED (Int.Cl.6) 603F
P,X	EP 0 869 396 A (SVG LITHOGRAPHY SYSTEMS INC) 7 October 1998 (1998-10-07) * column 2, line 3 - line 19 * * column 3, line 32 - column 4, line 9 *	1,2, 10-12, 19,23-26	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 16 March 2001	Examiner Aguilar, M.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 99 30 2768

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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16-03-2001

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4598197 A	01-07-1986	JP 1759341 C	20-05-1993
		JP 4045970 B	28-07-1992
		JP 59028337 A	15-02-1984
		DE 3328578 A	05-04-1984
		FR 2536547 A	25-05-1984
		GB 2126740 A	28-03-1984
		IT 1164408 B	08-04-1987
		US 4780606 A	25-10-1988
		US 4701608 A	20-10-1987
US 5486896 A	23-01-1996	JP 6244077 A	02-09-1994
		JP 6302501 A	28-10-1994
		JP 6349711 A	22-12-1994
JP 10199800 A	31-07-1998	US 6051842 A	18-04-2000
EP 0869396 A	07-10-1998	US 5966202 A	12-10-1999
		US 5895737 A	20-04-1999
		CA 2233543 A	30-09-1998
		JP 10340854 A	22-12-1998
		US 6013401 A	11-01-2000
		US 6097474 A	01-08-2000